European Research in Computing Systems

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ICT Programme

European Commission
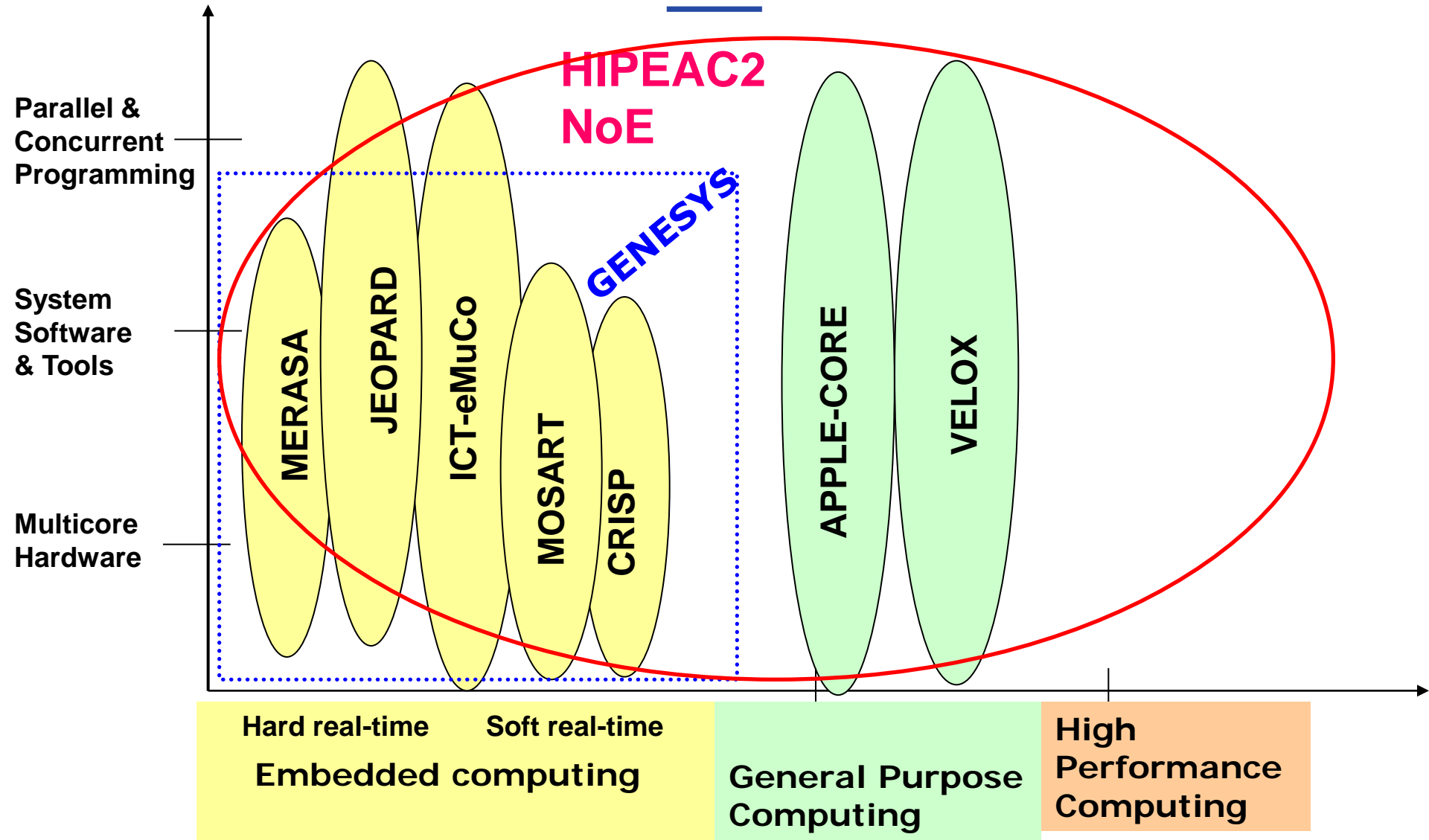
3 Computing Systems Calls:

- **2007 / 25 million**
- **2009 / 25 million**
- **2011 / 45 million**

95 million euros investment
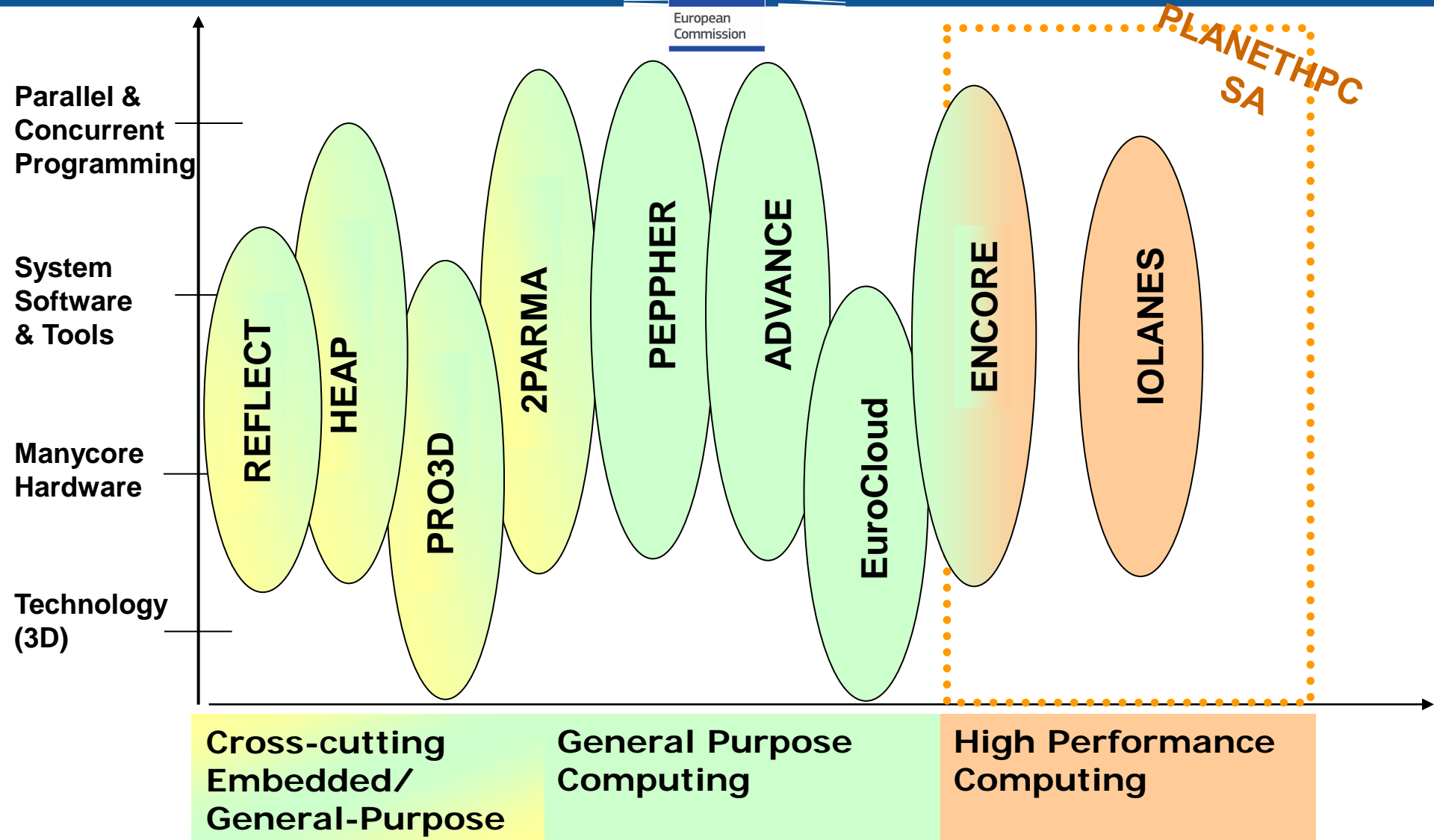
Additional funding/activities:

- **Joint projects with Russia on HPC performance analysis tools and HPC code scaling (2011)**
- **Additional funding through the FET part of the ICT programme (e.g. Teraflux project, exascale projects)**
- **Factories of the Future PPP bringing computationally demanding applications from engineering and manufacturing**
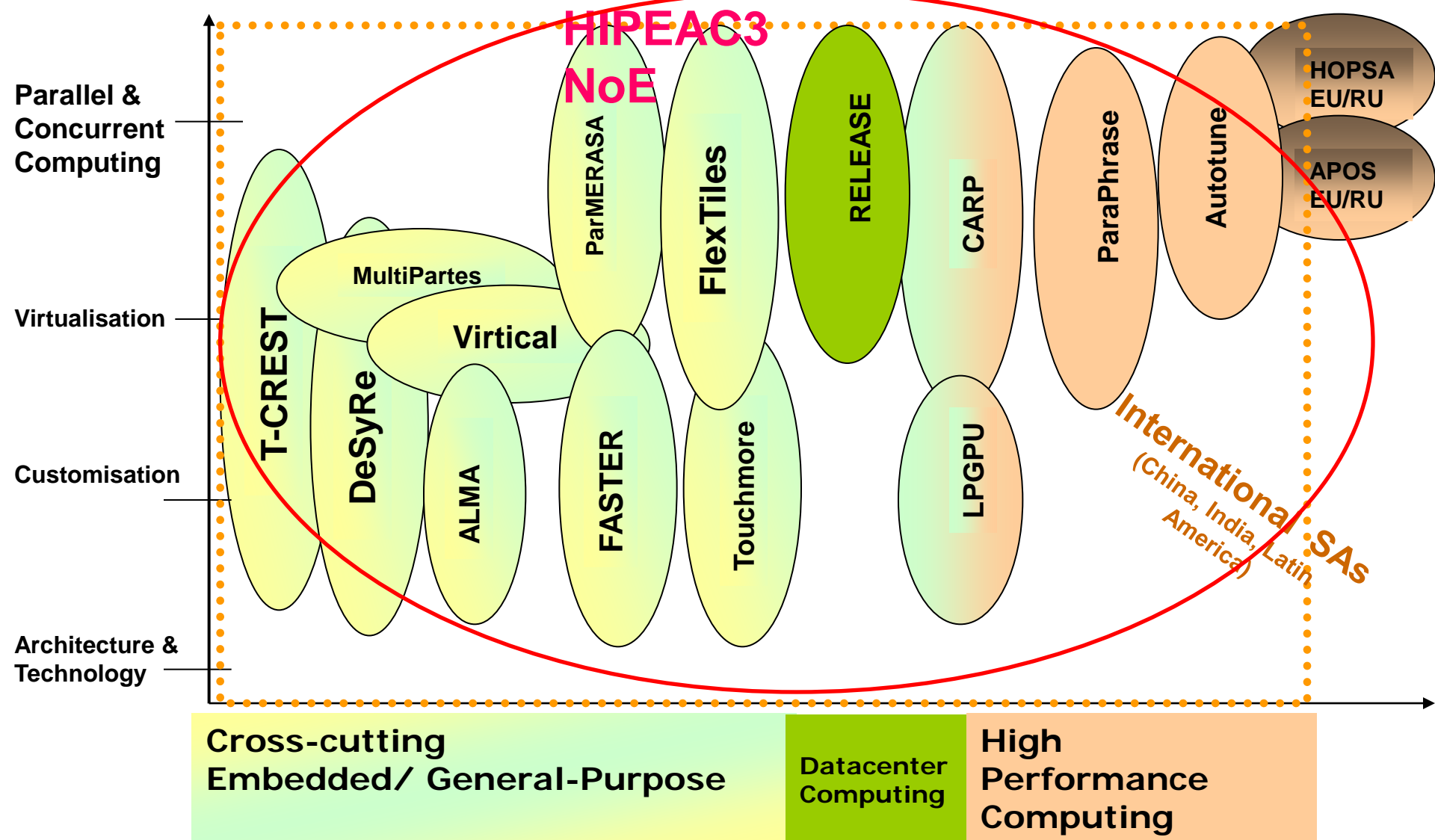
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2009 Call project portfolio

PLANETHPC SA

Parallel & Concurrent Programming

System Software & Tools

Manycore Hardware

Technology (3D)

REFLECT

HEAP

PRO3D

2PARMA

PEPPHER

ADVANCE

EuroCloud

ENCORE

IOLANES

Cross-cutting Embedded/ General-Purpose

General Purpose Computing

High Performance Computing

Example of international research collaboration in High-Performance Computing:

Joint Call with Russia

- *Two projects started in early 2011*
  - **www.hopsa-project.eu**
  - **www.apos-project.eu**
- *Funding by the European Commission and the Russian Federation*

- *The HOPSA project (HOListic Performance System Analysis) aims to create an integrated diagnostic infrastructure for combined application and system tuning*
- *The APOS project (Application Performance Optimization and Scalability) works on scaling and optimization of HPC codes from application areas like seismic modeling, oil- and gas-reservoir simulation, computational fluid dynamics, and fusion energy.*

... looking ahead
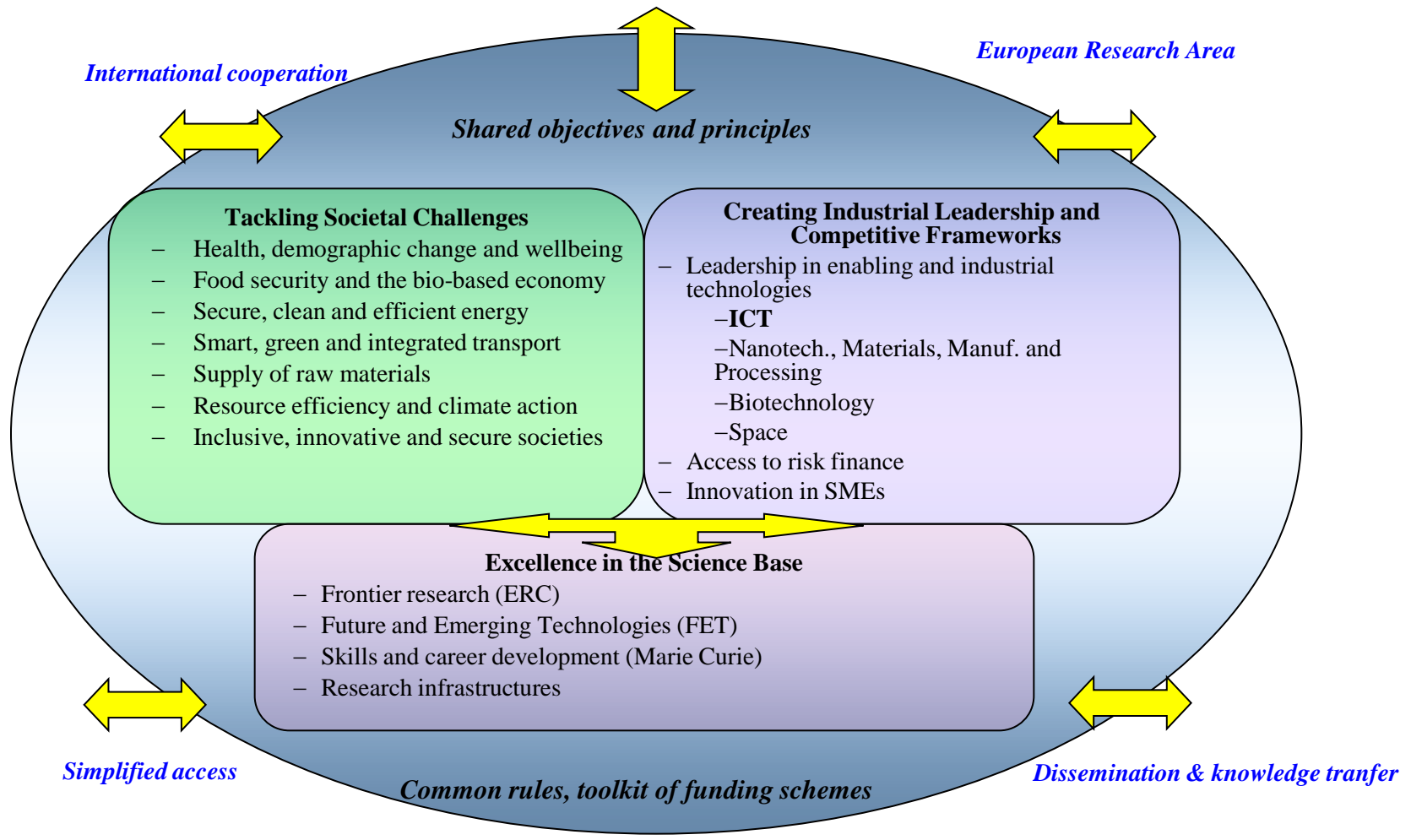
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Longer term (2014 – 2020)

Horizon 2020

The new
European Framework Programme
for
Research & Innovation

- *Proposed amount for Horizon 2020: €80 billion in constant 2011 prices (~€90 billion in current prices)*
- *46% increase compared to current period (2007-2013)*

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Europe 2020 priorities

European Research Area

International cooperation

Shared objectives and principles

Tackling Societal Challenges
- Health, demographic change and wellbeing
- Food security and the bio-based economy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Supply of raw materials
- Resource efficiency and climate action
- Inclusive, innovative and secure societies

Creating Industrial Leadership and Competitive Frameworks
- Leadership in enabling and industrial technologies
  - **ICT**
  - Nanotech., Materials, Manuf. and Processing
  - Biotechnology
  - Space
- Access to risk finance
- Innovation in SMEs

Excellence in the Science Base
- Frontier research (ERC)
- Future and Emerging Technologies (FET)
- Skills and career development (Marie Curie)
- Research infrastructures

Simplified access

Common rules, toolkit of funding schemes

Dissemination & knowledge tranfer

Excellence in the science base

- **European Research Council**

- **Future and emerging technologies (FET-Open, Proactive, Flagships)**

- **Skills, training, career development (Marie Curie)**

- **Research infrastructures - networking, access, development (including eInfrastructures)**

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Tackling societal challenges

- **Health, demographic change & wellbeing;**

- **Food security, sustainable agriculture & bio-based economy;**

- **Secure, clean &efficient energy;**

- **Smart, green and integrated transport;**

- **Climate action and resource efficiency including raw materials;**

- **Inclusive, innovative and secure societies**
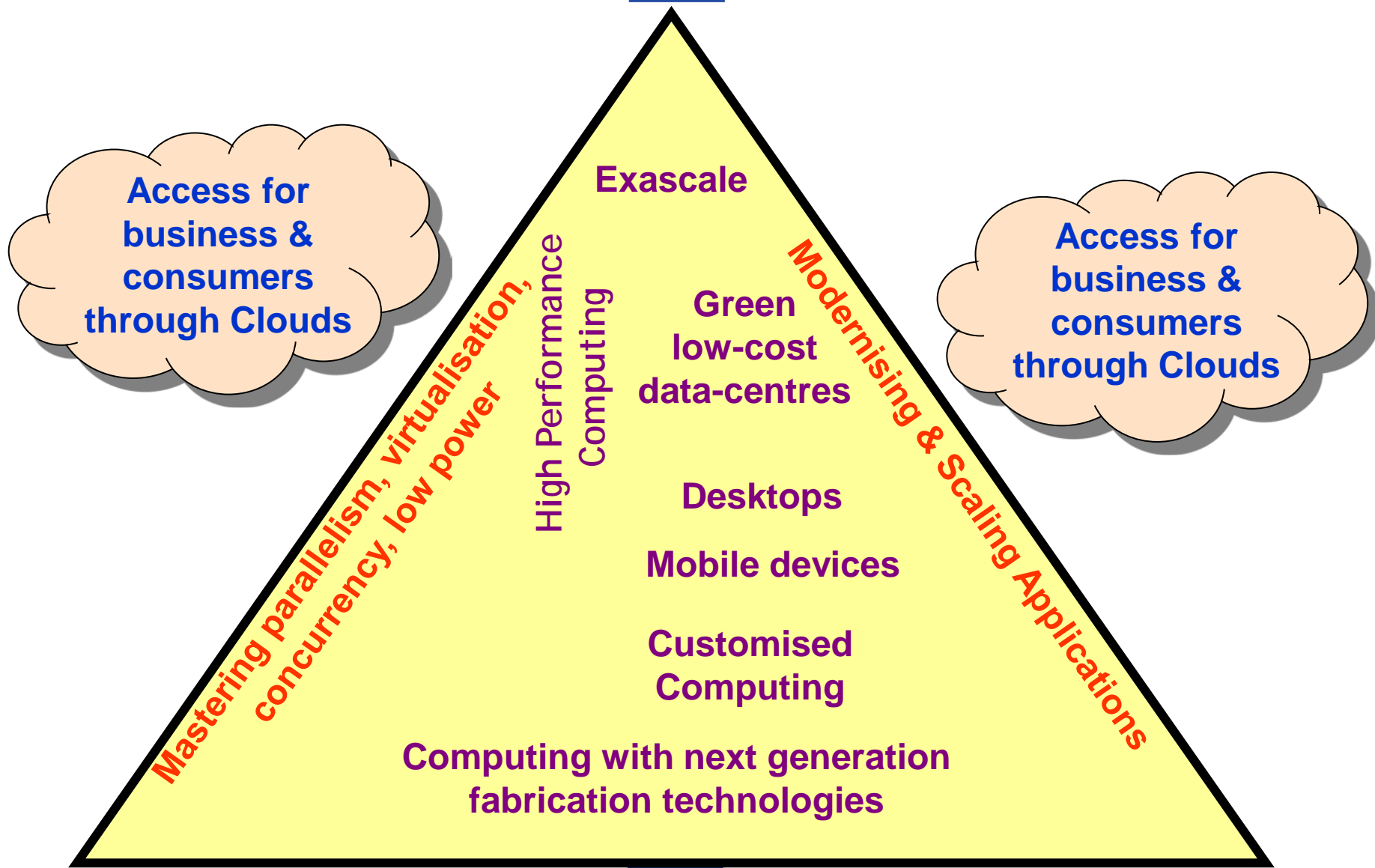
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Industrial leadership and competitive frameworks

- *Leadership in enabling and industrial technologies:*
  - **Information and Communication Technologies**
  - Nanotechnologies, advanced materials, advanced manufacturing and processing
  - Biotechnology
  - Space
- *Innovation in SMEs*
- *Access to risk finance*
- *Grant to the European Institute for Innovation and Technology (EIT)*
- *Direct actions of the Joint Research Center*

- *A new generation of components and systems: engineering of advanced and smart embedded components and systems*
- *Next generation computing: advanced computing systems and technologies*
- *Future Internet: infrastructures, technologies and services*
- *Content technologies & information management: ICT for digital content and creativity*
- *Advanced interfaces and robots: robotics and smart spaces*
- *Micro- and nanoelectronics and photonics*

Access for business & consumers through Clouds

Access for business & consumers through Clouds

Exascale

Green low-cost data-centres

Desktops

Mobile devices

Customised Computing

Computing with next generation fabrication technologies

High Performance Computing

Mastering parallelism, virtualisation, concurrency, low power

Modernising & Scaling Applications

EUINCOOP role

Deepen strategic R&D cooperation between Europe and India in the field of Computing

Identify common needs, research issues and opportunities for cooperative R&D on Computing between EU and India

Investigate the possibility of joint research calls and projects in Horizon 2020

Thank you!

European Commission

More information:

Computing Systems Research Objective

cordis.europa.eu/fp7/ict/computing/home_en.html

Horizon 2020

http://www.ec.europa.eu/research/csfri/

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